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THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume XII

September-October, 1910

Number 5

THE DISCOVERY OF THE NEST AND EGGS OF THE GRAY-CROWNED LEUCOSTICTE

By MILTON S. RAY

WITH TWELVE PHOTOS BY OLUF J. HEINEMANN

AFTER baffling scores of searching oölogists during the long period since the bird was first described by Swainson in 1831, the nest and eggs of the Gray-crowned Leucosticte (*Leucosticte tephrocotis tephrocotis*) have at last been brought to light. The place of discovery is Pyramid Peak, a lofty mountain of the great Sierran chain, in the eastern portion of Eldorado County, California. And now, a nest having at last been found, the reason why the small army of collectors have searcht in vain becomes more apparent, the nests being either invisible or inaccessible, probably as a rule both.

I had reacht Bijou on Lake Tahoe on the 20th of May, 1910. It was not until after Mr. Henry W. Carriger joined me on the third of June, however, that the trip to Pyramid Peak, in quest of those eggs which have hitherto seemed almost as impossible to secure as those of the Roc or of some fabled Halcyon, was definitely determined upon. In the matter of a proper date for eggs, we had, of course, but little to guide us. Chester Barlow, who no doubt based his calculations upon the dissection of birds shot, has stated that he was of the opinion that the birds begin to bild around the first of June. From this we figured that if the peak was reacht by the tenth it would be in ample time for eggs, should a nest be located.

Having previously ascended Pyramid Peak, however, on July 5, 1902,¹ and having spent some hours searching for the homes of those finches of cloudland, the prospects to me did not seem very promising. In addition, too, was the long list of unsuccessful attempts, and particularly those in recent times in this very locality, by such experienced men as Chester Barlow, W. L. Atkinson, J. M. Willard, and

¹ Auk, Vol. xx, pp. 187, 188.

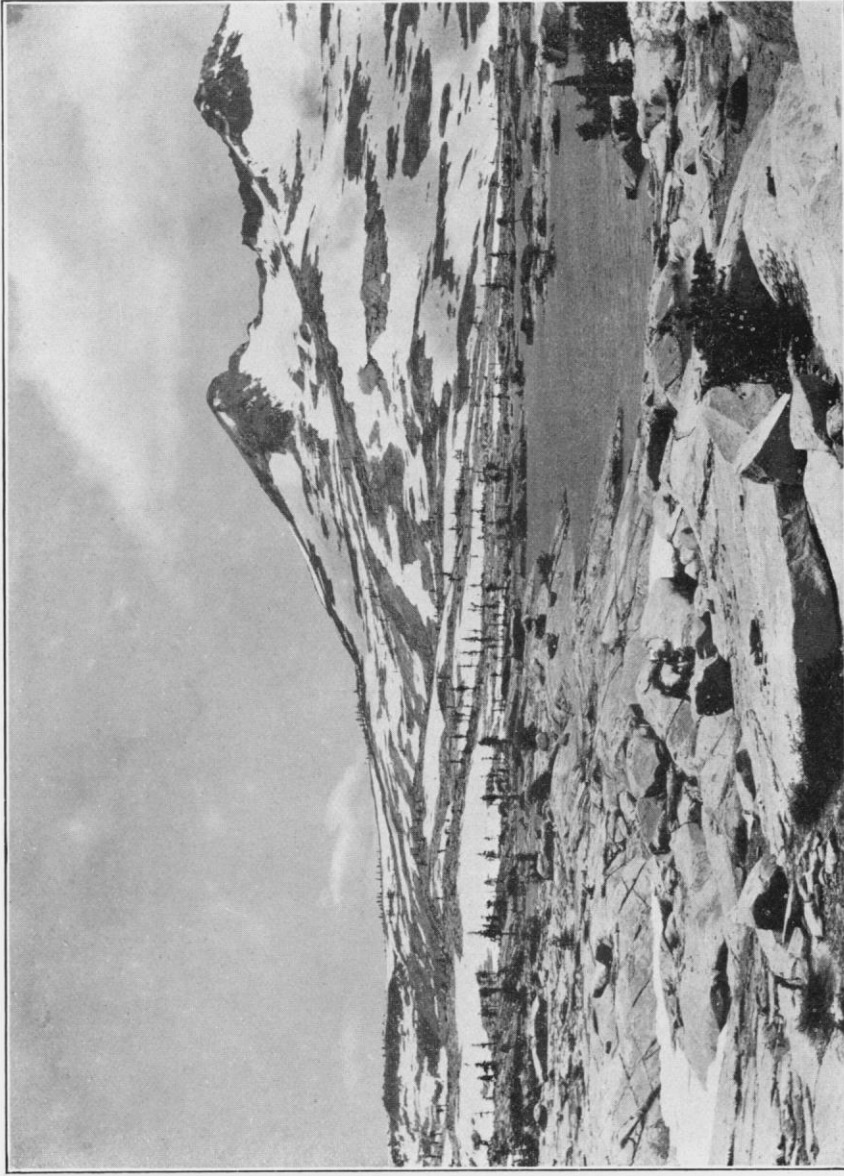


Fig. 43. PYRAMID PEAK (NEAREST CENTER OF PICTURE) AS SEEN FROM DESOLATION VALLEY. THE
NESTING SITE OF THE LEUCOSTICTE WAS ON THE NEAR FACE OF THE PEAK SOMEWHAT
ABOVE THE FIRST LITTLE RIDGE RUNNING OFF TO THE RIGHT. THE SITE WAS
ABOUT 150 FEET BELOW THE SUMMIT

especially W. W. Price, who has spent season after season in the region, and Dr. Sterling Bunnell² who made such an extended tho fruitless search. Nor was this all; for I was furthermore aware of the difficulties which we were liable to encounter in ascending Pyramid as early as the tenth of June; for the attempt I made on this date in 1903³, when we were forced back not only by almost impassable snow-drifts but by drenching rain-storms, while snow fell on the peak just above us, was still vivid in my memory. Chester Barlow is one of the few to ascend Pyramid as early as June tenth; the majority of those who climb the peak seldom do so until late July or August when the ascent becomes comparatively easy. Carriger, however, unacquainted as yet with the *Leucostictes* or their alpine habitat was far more sanguine and could see no reason why a careful search might not be rewarded. As for the hardships and danger, these were laugh at, and the trip became a reality.



Fig. 44. DEPARTURE FROM BIJOU BY MOTOR-BOAT;
DUTKE IN FOREGROUND

At five o'clock, on the morning of June 9, we left Bijou, Mr. Wilton Young driving us eight miles thru Lake Valley to the foot of the summit of the Placerville Lake Tahoe Stage Road and thus enabled us to reach the Forni Meadow at the base of the peak by nightfall. As we carried provisions for a week, blankets, and the usual collecting paraphernalia, we advanced but slowly. The summit of the stage road, altitude 7600 feet, was made at 8:30 a. m., and from here our progress became still slower; for Carriger, meeting for the first time such rare species as the Sierra Grouse, Sierra Hermit Thrush and Ruby-

crowned Kinglet, in their summer home, made wide detours from the road that were at times decidedly retrograde, and for a while it seemed as if the prospective nests of the *Leucosticte* would remain undisturbed until some future season. But now, to the northwest above the tall pines and firs that walled the summit meadow, rose the ever-present Pyramid, towering above all its neighbors, and, splasht with snow, it presented a picture of wild and rugged mountain beauty unequalled in the region. Pyramid, the peak of peaks, was luring us, and we continued on our way. Phillips' Station, 6900 feet elevation, was past at ten o'clock, and from here the road is all down grade to Echo, 5700 feet elevation, where, arriving at 12:17, we halted for lunch.

The usual route from Echo to the Forni Meadow is by the Georgetown Junction Road, but insted we took a mountain trail which tho very steep is consider-

² Notes by Dr. Bunnell, appended to this article.

³ Auk, Vol. xxii, p. 364.

ably shorter. The day was intensely warm and the trail, which winds for a number of miles up an almost perpendicular cliff, over rocks and boulders and thru dense thickets of brush, possesses scarcely a single shade-tree and not a single brook for relief of the tired trampler. As soon as we reached the edge of the Pyramid Peak plateau, however, all the beauty of Sierran woodland was spread out before us. Beneath the great trees, shaded from the sun, lay cooling beds of snow, while pellucid streams of snow-water, crystal lakes and verdant, but very boggy, meadows were encountered in all directions. Here, as on the summit of the stage road, we found bird life abundant, and the occurrence of such rarities as the Sierra Crossbill, Sierra Sapsucker, Williamson Sapsucker, and California Pine Grosbeak, for a second time made the abandonment of the journey to the peak seem more than probable. At five o'clock we arrived on the Forni Meadow and encamped for the night. The following morning the weather conditions being very favorable we decided upon the ascent and left camp a little after daybreak. At 8,500 feet elevation I consumed considerable time endeavoring, tho ineffectually, to reach the nest of an Audubon Warbler (*Dendroica auduboni*), placed on the very bough-end of a giant fir; while Carriger at an altitude of 8750 feet retaliated by spending over an hour, climbing to, and excavating, the dwelling cavity of a Mountain Bluebird (*Sialia currucoides*), which, situated twenty feet up in a dead tree trunk was found to contain five eggs in a well advanced state of incubation. On ascending higher, birds grew fewer; Red-shafted Flickers (*Colaptes cafer collaris*), Mountain Chickadees (*Penthestes gambeli*) and California Pine Grosbeaks (*Pinicola e. californica*) were still met with; but above 9250 feet naught remained but the noisy Clarke Nutcracker (*Nucifraga columbiana*), cawing from among the dreary wind-blown hemlocks and dwarf pines that mark the limit of timber. Above us, upsparring into the clouds, still towered Pyramid Peak, the home of the Leucosticte. As this was an early summer the broad fields of snow were traversed without much difficulty and we were soon clambering up over the gigantic mass of huge granite boulders, which, piled in chaotic confusion, extend to the apex. This we reached at 10 a. m.; but of the birds we were in search not a single individual had so far been seen.



Fig. 45. HEINEMANN GETTING BREAKFAST NEAR LAKE LUCILE; RAY STUDYING MAP OF THE ROUTE

Now, from the summit, however, we noticed some half-dozen Leucostictes flying among the rocks and on the snow-drifts below, on the north and northeast side of the peak. Desiring to see if more birds could not be brought to view we started several boulders down the mountain side and discharged one of our firearms a

number of times. This method proved successful; for the uproar brought forth the largest gathering of *Leucostictes* I had ever seen, a conservative estimate being twenty birds. And now, altho I had previously cautioned him of the danger, Carriger in his enthusiasm hurried down to where the flock was assembled and in doing so pickt out a trecherous route which led to where a sheer wall drops some 2,000 feet. For an instant he lost his footing among the loose boulders and narrowly escaped being dasht over the precipises. But this narrow escape was soon forgotten when we reacht the ledge on the edge of the chasm; for never before was enjoyed such intimacy with perhaps the rarest of all our breeding birds. *Leucostictes* were flying above and around us on all sides, uttering continuously that melodious twitter which is somewhat like the notes of a Mountain Bluebird but higher pitcht and more prolonged. We observed that some of the birds had a peculiar manner of ascending to some hight, hovering for a moment and then abruptly dropping several feet with outspred wings. Our attention, however, was soon riveted on two individuals who, feigning broken wing, fluttered and hobbled over the nearby rocks in a most distressing fashion, and the meaning of which even the veriest novis in bird-craft could not well mistake. These two were closely watcht, and so tense were we with excitement that the cold rain which now began falling, for a time was almost unnotist. On the disappearance of the birds among adjacent rocks we hurriedly followed and made a most careful examination of every nook and crevis in the vicinity; but these to our disappointment failed to show any trace of a nest. Above us, across the chasm, we saw a bird fly to a cavity beneath the rocks, and Carriger was soon in pursuit, while I remained on the ledge to aid him in finding the exact spot; but as before the search revealed nothing.

The excitement the uproar had caused in the colony had now subsided and life among the *Leucostictes*, up here on the top of the world, settled down again to normal conditions. The birds, unaccustomed to the presence of man, seemed but little concerned over our proximity.

The Rosy Finch, as some would prefer to call the *Leucosticte*, is ever active either on foot or wing, among the rocks, along the cliffs or while feeding on stranded insects upon the snow. Endowed by nature to combat the fierce gales which prevail almost continually in these high altitudes, this bird possesses great power in its broad stretch of wing. The flight is rapid, in long, graceful, sweeping curves, and the birds mount hundreds of feet even against the strong head winds without much apparent effort. From the edge of the chasm we notist a number of birds fly to crevices in the sheer walls of granit on the west side of Pyramid; but as it would have been utterly impossible to follow them we contented ourselves with watching those in more accessible situations.

The males are certainly beautiful examples of bird life, in their brilliant coloring of rich chestnut brown, streaked on the back with dusky and edged on the wing- and tail-coverts with light scarlet. The forehead and fore part of the crown is black, while the balance of the crown consists of a broad conspicuous patch of gray. Much of this gay plumage is lacking in the females, however, who are much paler and duller colored. In size the bird is about equal to the Mountain Bluebird which it also resembles somewhat in flight, altho it is much swifter on the wing than *Sialia*. In grace of bild, the *Leucosticte* according to my idea has few equals; the form of its finely shaped head and graceful neck, so often lost in the preparation of skins, can be seen to advantage in the accompanying profile-photograph.

Along the ledge in a number of places there were patches of the little dwarf pine, which, traveling over the rocks but a few feet high, resembles a kind of brush more than a tree; and among these, Rosy Finches were observed quite often.

Barlow has stated that the birds feed on the seeds of this conifer; but in this instance it appeared to us they were picking off lady-bugs which happened to be especially numerous on the branches. We also noticed on several occasions two of the brilliantly colored males suing for the affections of some undecided female, and from this we began to fear that our trip had perhaps been made at too early a date. After two and a half hours of continuous field work we came to the conclusion that at any rate we were not, by our present methods, making satisfactory progress, and on holding a conference decided to collect a specimen or so for the purpose of dissection. Carriger took aim at a bird on a nearby snow-patch, but mist, scattering the snow about it in all directions; and when, a few moments later, this or some other individual lit on a rock close by, Carriger was joyfully amazed to note

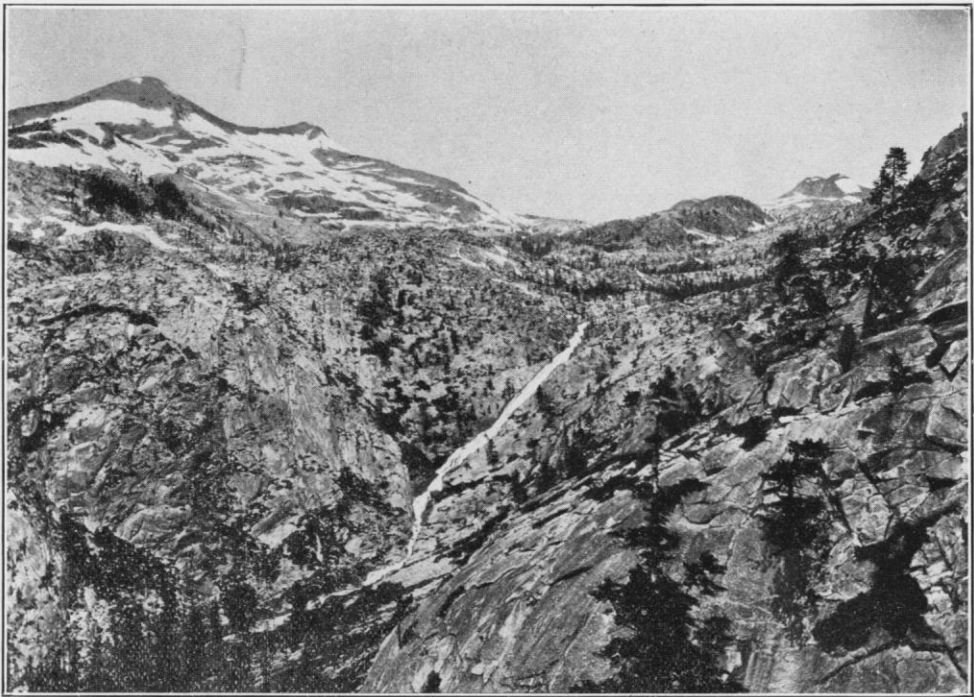


Fig. 46. PYRAMID PEAK, FROM POINT NEAR TRAIL FOUR MILES FROM PHILLIPS' STATION AND AT AN ELEVATION OF 7750 FEET

that its bill was filled with grass stems. On seeing the bird disappear among the rocks and then reappear with an empty bill, he rushed to the spot, but failed to find the hoped-for nest. And now it was only by the very slenderest thread of chance that the nest was discovered. Carriger found by laying one eye upon the flat surface of a large rock that a portion of an almost completed nest could just be discerned in the semi-darkness beneath the boulders. Wild with excitement over the discovery, he hastily called me to the spot; and hid by adjacent boulders we jointly watched the bird, a female, return from the edge of the timber-line far below, with more material for the nest, so intent on her purpose that she seemed oblivious of our presence, alighting but two feet from us. For a second time we saw her swing off in a whirlwind flight down to the base of the peak and with equally rapid

flight against the head-wind return, the male accompanying her both times and perching on nearby rocks while she placed the material.

We felt, however, that it was too great a risk to continue our investigations in the vicinity of the nest, as the birds might desert it; so we rounded the peak to the east side where by careful watching we found three pairs engaged in nest-building. One pair Carriger and I observed together, and a pair each singly; but in every case the birds descended to such depths that all trace of them was lost. Sometimes they entered openings and crevices but a few feet away, carrying material, and would soon emerge again with an empty bill; but search as we would, as far as we could reach or see we were unable to locate another nest, altho every movable boulder was dislodged. Other birds, again, were very wary, disappearing beneath the rocks with material and coming up twenty feet or so distant still carrying it in the beak. It was only after a series of such decoy-trips as these, in the passages beneath the rock, that the elusive birds finally placed the material and flew away for more, leaving us completely bewildered as to the location of the nest.

In every instance, it was the female who was engaged in the nest building, she was always accompanied by her twittering mate who remained on some nearby rock or hovered in the air while she disappeared between the rocks. One bird, a protégé of Carriger's, went down thru the boulders and, altho he waited near the spot a long time, did not appear again. At half-past three I found a broken fresh egg, which we believed to be of this species, lying on a boulder at a point where a bird had previously gone in with nest material. On finding this we felt almost sure there were some nests on the peak containing eggs and we redoubled our efforts to flush sitting birds; but the longer we worked the more we began to realize that the nest found was placed in an exceptionally favorable location and that the chances of finding another similarly placed were exceedingly remote.

At five o'clock the strong southwest wind, which had begun blowing at three, now became so riotous that we were forced to leave. Before going, however, it was definitely agreed that I was to return on the 19th of June and revisit the nest found. With this object in view I spent considerable time "ducking" various prominent rocks in a line from the nest down the side of the peak to the nearest timber. The process of "ducking" consists of piling three rocks upon one another and is the common landmark used along all the mountain trails. To preclude the possibility of missing the location, at the third "duck" from the nest a blue cord was tied around a large boulder, while at the last an arrow pointed straight to the nest-cavity; and in addition to this, an accurate map of the location was drawn. While all this precaution may seem unnecessary one must consider that the entire peak is one mass of boulders and that particular spots would be almost impossible to remember. In fact we were surprised at the remarkable memory possessed by the building birds who journeyed half a mile or more away and came back to the exact spot without hesitation; and when they did not do so, it was purposely.

Returning, we made camp at dusk and after reviewing our experience long into the night, we came to the conclusion that, while we had a day or even two to spare, further trips to the peak would simply end in a fruitless search. Everything now, we felt, depended on the nest found, and upon the successful return to it.

The following morning was spent about Forni's, and at half-past one we started by Desolation Valley for Lake of the Woods. This picturesque lake of unrivaled beauty we reached at six o'clock, after negotiating a series of precipitous cliffs and snow drifts, and fording a number of icy torrents. On the next day, after some field work about the lake in the early and frosty morning hours, we

tramp over a steep snow-covered range to Phillips' Station where we arrived at half past one in the afternoon. We remained here until the 14th of June, when we returned to Bijou, from where Carriger on the 15th started back to San Francisco.

After the departure of Carriger the weather, which is ever uncertain in these

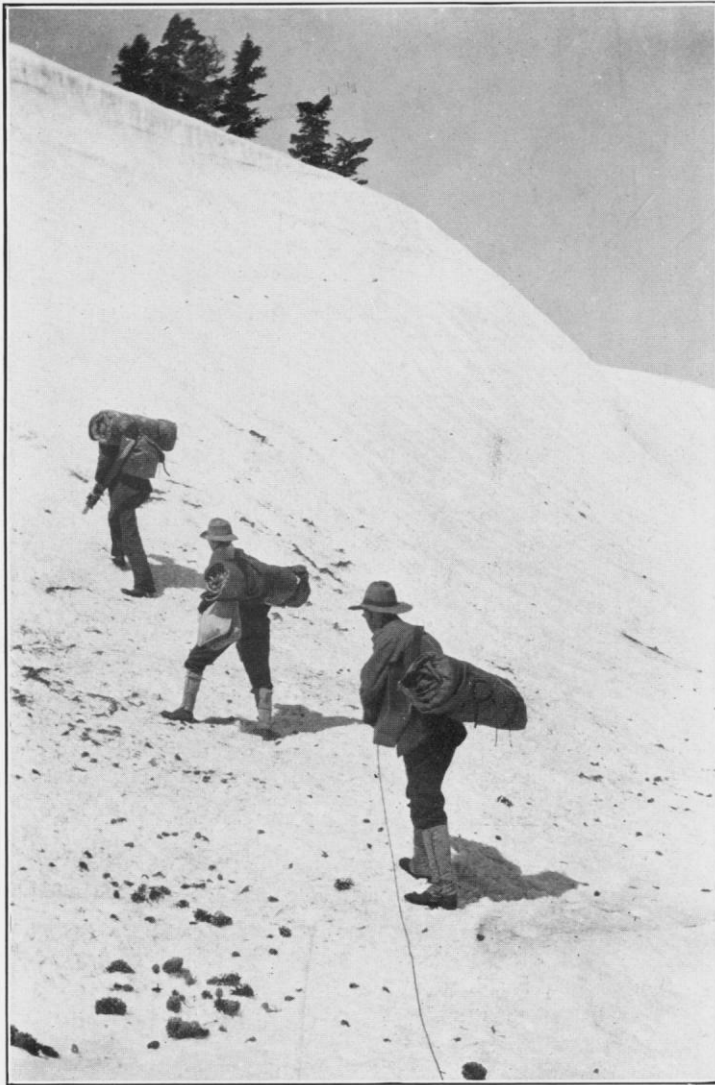


Fig. 47. FEATURE OF MOUNTAIN-CLIMBING ENCOUNTERED:
SNOW-DRIFT TO BE TRAVERSED; READING UP,
HEINEMANN, DUTKE, RAY

altitudes, became decidedly uncertain for a return journey. Snow had now fallen twice on the peak since we left, and rain on the lower range, while in the afternoon of June 15 a strong southwest wind began blowing: a strong wind at Lake Tahoe meant a whistling gale on Pyramid. Mr. Oluf J. Heinemann, who was to

accompany me on the trip and whose arrival I was now anxiously awaiting, had failed as yet to send me any definit word, and as the time was growing short the outlook on the evening of June 18 was not very promising.

At the eleventh hour, however, Heinemann came, arriving on the afternoon of June 19 accompanied by Mr. Richard Duttke, a fellow-photographer. Altho, without some previous training, to shoulder a heavy pack and tramp over sixty miles of the roughest type of mountain country is by no means an easy task, Heinemann and Duttke, realizing the rarity of the specimens at stake, agreed to start without delay. The rest of the afternoon and some time the next morning was taken in overhauling and arranging our outfit. Heinemann had been notified before leaving the city, of the needs of the trip and came provided with a generous supply of film packs, a 26-foot coil of rubber tubing, flash-lights and other photographic equipment. Duttke, appointed commissary-in-chief, busied himself laying out a stock of provisions that would have almost done for a journey to the

pole. This we materially reduced, however, as Heinemann and I, from previous experience, drew the line at a pack weighing over 45 pounds.

To save time the trip to the peak was laid by Glen Alpine Gorge, a rougher tho somewhat shorter route than by Phillips' Station, Echo and the Forni Meadow. Thru the kindness of Mr. Charles Young we were taken as far as Tallac by motor-boat, which saved us seven miles over sandy roads. It was about eleven when we filed out of Tallac; and the pack, head winds and hilly road made traveling slow and laborious. On every lake we past, myriad white-capt waves were racing before the wind; while all around, the swaying forest trees creakt and groaned



Fig. 48. RAY SEARCHING FOR NESTS OF LEUCOSTICTE
NEAR SUMMIT OF PYRAMID PEAK

in a way that was decidedly depressing. Late in the afternoon we reacht Glen Alpine Springs where we waited for dinner so as to make no inroad on our own supply. Leaving here, Grass Lake was made at dusk, where, among wind-sheltering rocks, we unrolled our blankets for the night. The roaring winds still showed no sign of abating and we began to feel uncertain, not only of securing any photographs but of ever reaching the nest location; for when such hurricanes as this rage on these mountain tops it is practically impossible to go against them. As the wind continued all night and the following morning we decided to leave the Pyramid Peak Trail and press on to Lake of the Woods to await a possible change in weather conditions.

A little after dawn we were zigzagging up the steep trail which leads to Lake Lucile. Before we could reach the latter, however, it was necessary to mount a great bank of snow, which, almost vertical, rose about thirty feet high and blockt

our passage. The camp ax was brought into commission and when hand- and foot-hold had been chopt in the frozen wall we succeeded in getting over it. At Lucile we made a campfire among the rocks, which the wind would not allow at Grass Lake, and prepared a late breakfast. About noon Lake of the Woods was reacht and camp establisht near Hell-Gate, the utensils and gear from the cache belonging to Prof. W. W. Price being used.

All afternoon the wind kept blowing, and that night they made great sport of the camp-fire which we bilt in an effort to temper the rimy atmosphere. After a wild night the winds at dawn died down and the sun ushered in one of those royal Sierran mornings, calm, clear and magnificent. As early as four o'clock we saw the seemingly impossible had occurred and that the propitious time for the ascent had come. Hastily packing such supplies as were necessary we set out over that rough, glacier-hewn gorge, Desolation Valley, our trail lying along its southern edge.

The beauty of Avalanche Lake with its rocky islets, foamy contributing streams and frame of green forest and glittering snow proved too great a temptation, however, for our photographic contingent, and a short stop was made while views were taken. Rounding Crystal Lake, which also received its quota of film we started up the lofty cliffs which wall Desolation Valley on the west. The region now becomes trail-less, and for safety travel is made abrest, for often great rocks, becoming loosened and gathering momentum, go tearing down carrying destruction in their path. Thus, one became his own pathfinder, and in this way each pursued a somewhat different course.

Close to the top of Pyramid I visited a spot which Carriger and I had previously markt with a huge monument of rocks. It was here we had noted a *Leucosticte* carrying material to an unseen nest. Now, however, no birds were about, nor could any be roused. All along I had not been over sanguine about the possible results of the trip, as so often nests are destroyed or deserted; and now, not finding a single bird on the east side of the peak, when but eleven days before, we had seen a dozen, made me feel that the prospects were gloomy indeed.

We reacht the top of the peak at 11:40 and after a quick lunch, for a moderate breeze had begun blowing, we started down to the nesting site. By chance more than from memory I came to the second pile of rocks from the nest. Like the east side, the north side of the peak appeared entirely bereft of its former bird-life; and it was with drooping spirits altho not entirely without a keen feeling of expectation that I approacht the nest. My hopes revived, however, as a *Leucosticte* flew out from some nearby rocks and it was an anxious moment when I reacht the aperture among the granit slabs and peered in. In the dim light, among the feathers of the nest, I could just discern three eggs which appeared dark with in-

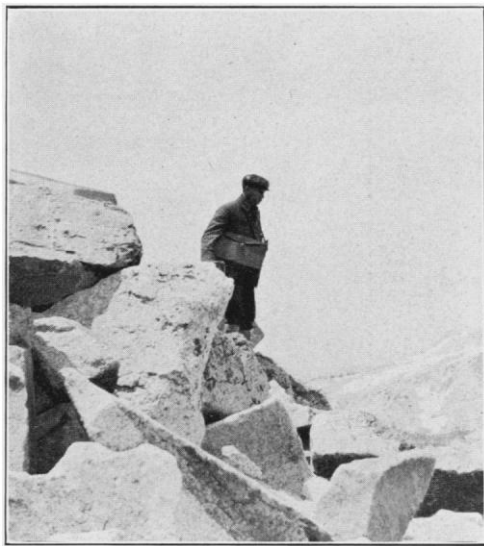


Fig. 49. HEINEMANN DESCENDING TO SECURE PHOTOGRAPHS OF LEUCOSTICTE

cubation. When I joyfully informed my expectant companions of the victory, Duttke, who among other things was yell-leader of the expedition, started three rousing cheers; and no small victory it was, for to me it ment that the two trips to the peak and back, 120 miles, taking almost two weeks time, had not been in vain.

Heinemann and Duttke now joined me, and the camera was set at once for pictures. As the bird was not in the least afraid, and lit on the rocks all about the nest-entrance while we were arranging the camera, we dispenst with using the long rubber tube. In fact we soon found that so persistent was the mother-leucosticte in her efforts to reach the nest, that it was necessary time and again to drive her away in order to keep her from entering. I notist particularly that this bird never once used the broken-wing tactics that we had seen others do on our previous visit. The method she employed was to disappear for a time among various nearby rocks endeavoring to draw us away from the spot. It was on one of these occasions, after our patience had been almost exhausted, that I decided it might be barely possible she had returned to the nest by some of the under-rock passages. On looking in towards the nest all appeared dark and I knew at once



Fig. 50. GRAY-CROWNED LEUCOSTICTE APPROACH-
ING NEST-SITE AMONG THE BOULDERS

the bird must be sitting. It was only due to the fact that the nest and eggs were light colored that they had been visible at all. I experienced considerable difficulty in flushing the bird, almost touching her before she finally left the nest; and then the way she went fluttering along the narrow passage made me fear for the safety of the specimens, which had not yet been collected.

Gently-persistent, with those little cheery, pleading notes, over the rocks she came again and again altho repeatedly driven away, and the solicitude she showed could not have but toucht the hart of any observer. I must say, even in spite of their extreme rarity, it was not without a

certain feeling of compunction that the eggs were taken. Every time the bird returned, when it was possible, a picture was taken and in all we secured nine photos, the best ones being herewith produced. This work covered a period of two and a half hours and during all this time the male did not appear; in fact, no other birds at all were seen.

At last, for it seems even the patience of the Leucosticte had its limitations, the bird would no longer come within camera range, and we turned our attention to the eggs and nest. In order to reach these it was only necessary to move a single boulder, and this, weighing but about 100 pounds, was an easy matter. Even with the boulder removed Heinemann pronounced the nest photographically impossible. Before disturbing the boulders we had taken a view of the nesting site, so we had to content ourselves with this. Bringing the eggs to light disclosed the fact that these consisted of four insted of three, one being hidden by feathers and by the depression of the nest, and, insted of being advanced in incubation as we had supposed, they proved almost fresh, two being practically so and two slightly incubated. One of a poetical turn of mind might compare the rosy plumage of the

Leucosticte with the gorgeous tints of the sunset clouds or liken its eggs to the drifted snow that characterizes its home. The student of birdlife cannot, however, indulge in any such fancy flights, if he is desirous of following the strait and narrow path of science. Thus it behooves me to simply state that the eggs are pure white, unmarkt, ovate-pyriform in shape, and in size measure in inches: .89x.62, .90x.63, .91x.63, .92x.62. The sharply pointed end and the peculiarly fine texture of the shell make the eggs at once distinctive. After being carefully taken from the nest, one by one, the specimens were well wrapt in cotton and placed in a partitioned box made of heavy block tin.

Our time was next devoted to the nest. To show how difficult this was to see, I may state that I pointed out the aperture to Duttke and askt him if he could see the nest within. After viewing it from seemingly every possible angle he declared he could see nothing of it and was rather amazed when it was later shown him. Altho but three feet in, yet from the fact that the passage first ran south, then south-west and then south again, the nest, being placed at the latter turn, was rendered almost invisible from without. Investigation showed the nest was situated in a small patch of soil, in a depression $1\frac{1}{4}$ inches deep which had undoubtedly been hollowed out by the birds themselves. As the nest was $2\frac{1}{2}$ inches high it was thus equally above and below the soil. It is a very curious fact that this spot was one of the very few places on the entire peak where soil was visible; and if in all cases the birds penetrate to the soil to bild, it would explain why they go to such great depths.



Fig. 51. GRAY-CROWNED LEUCOSTICTE IN ONE OF MANY POSES, AS IT FLITTED ABOUT OVER THE ROCKS

The nest is almost entirely and very compactly made of dry grass stems and roots.

These have the appearance of having been uprooted and are of course of the previous season. As the nearest available grass is half a mile or more from the nesting site the reason why the bilding birds made such long trips for material is explained. Fine light-colored grass forms the lining, with the addition of a few feathers. One of the latter runs lengthwise across the bottom of the nest cavity, dividing it in half. Unfortunately a fluffy feather belonging to the nest was blown away on the peak and lost. The nest is oval in shape and the dimensions are as follows: top, $5 \times 3\frac{1}{2}$ inches; cavity, $2\frac{1}{2} \times 3$ inches; depth of cavity, 1 inch; depth of nest over all, $2\frac{1}{2}$ inches.

We found the location to be 150 feet below the top of the peak. The altitude of Pyramid is 10,020 feet. We did not see Leucostictes on either trip below 9,300 and the majority were noted between 9,500 and 10,000 feet altitude. After

the nest had been carefully placed in cotton in a box which we had brought for the purpose we spent some further time in photographing the adjacent chasm, cliffs and other bleak tho scenic surroundings.

Besides the bird previously described, but two other *Leucostictes* were seen and both were flushed from the rocks; but an examination of the spots proved futile. It is certainly remarkable, that, altho we traversed the identical territory where we had but eleven days previously noted close to two dozen birds, now such a small fraction of that number were to be seen. If as seems probable most of the birds were sitting, where in the world were their mates? This scarcity, however, seems to be the usual condition of affairs on Pyramid, as Barlow on his trip (June 10, 1900) noted but two pairs, while I only found in all about five birds on my visit on July 5, 1902; and other writers record about the same number.

As a high wind had now begun to blow and as it was growing late (4 p. m.) we headed for camp. Tempted by a great saving in distance we foolishly decided

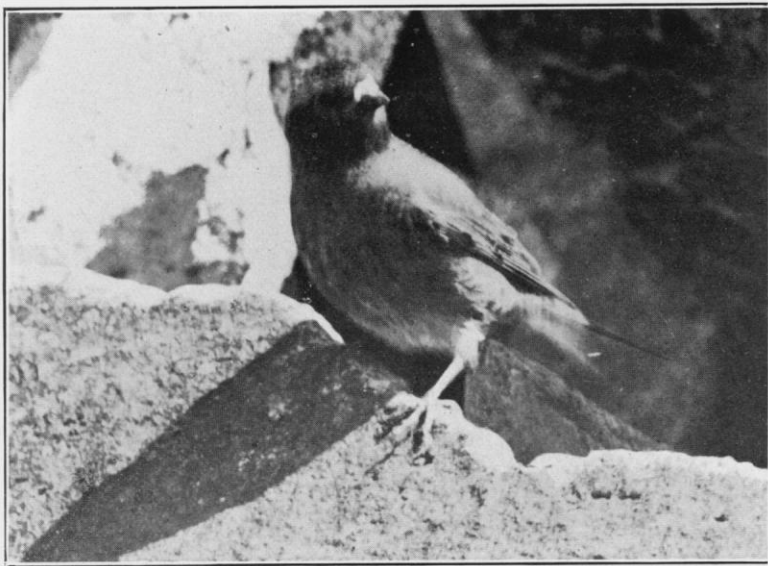


Fig. 52. GRAY-CROWNED LEUCOSTICTE IN ANOTHER POSE. ITS CONTINUAL ACTIVITY PREVENTED SHARPNESS IN THE PHOTO

on descending the north side of the peak. While in late summer, perhaps, this may not be such a difficult matter we soon found that to descend the almost perpendicular banks of snow was perilous in the extreme. More than once we fervently wished for the opportunity of returning by the route by which we had come; but, as it was impossible to go up again, we were compelled to continue. Once we reached the great snow beds which lie at the foot of the peak and stretch out over to the edge of Desolation Valley progress became easier. Going down the steep cliffs into Desolation required considerable time as the terrace must be worked back and forth in descending. A wearisome number of rocky walls, snow beds and banks, and brawling streams had yet to be negotiated, and it was after seven when our camp at Lake of the Woods was reached. The eggs and nest were found intact, but our rifle and camera-tripod, which we had used to slacken speed in going down the snow banks, were indeed in a demoralized condition.

Space will not allow me to describe at length how we ran out of provisions at Lake of the Woods and were forced to subsist for a whole day on but three slices of bacon; or how, on the day following, after a breakfast consisting of but a single slice, we made the long laborious march to Phillips' Station, against the strong wind which had now begun blowing again, and where we all did justis (or, rather, an injustis) to the excellent table set by Mrs. Vade Bryson. Eventually arriving in Bijou on June 24 the trip came to a successful conclusion. Thru the letter going astray in the mail, however, Mr. Carriger who was anxiously awaiting news of the trip did not know of the results until in July.

In closing I wish to add some notes by Dr. Sterling Bunnell, hitherto unpublished, and which I think will prove of considerable interest covering, as they do, such a wide range of territory. Dr. Bunnell writes as follows:

"I have always found the Leucosticte in either the Hudsonian or Arctic zone



Fig. 53. THE CENTRAL OPENING LED TO THE NEST WHICH, HOWEVER, WAS OUT OF SIGHT THREE FEET BACK BENEATH AND BETWEEN THE ANGULAR BLOCKS

and always among the snow except once: On July 15, 1902, when the surrounding snow had melted, I saw a flock as low as 9000 feet at the junction of East and Bubb's Creeks above the south fork of Kings River. In May and June they are almost invariably on the rocks and snow and live on the many insects that become stranded while flying over, and settling on the latter freeze there. In fact the snow is often dotted with these mosquito-like insects. From May to July, at least, Leucostictes are numerous from Mt. Whitney to Pyramid Peak in the Tahoe region. I could not find them in an extensive search in July on Mt. Shasta, nor on the Coast Range, altho I lookt for them on Preston Peak, South Yalloy Bally Mountain and on Mt. Sanhedrin. I found the birds on Pyramid Peak in June and close to the edge of Desolation Valley nearby. The following notes appear in my field book:

"June 6, 1901. At Kearsarge Pass, above Kings River, 12,000 feet altitude, I noted several small groups of these birds. They were twittering and would hop along now on the rocks and now on the snow. They probably had nests in the lofty rock wall. On the snow they would hop along in a zigzag line for a few feet and then fly for a few yards. The flight was fluttering like that of a Bluebird.

"June 7, 1901. Found some *Leucostictes* on the top of University Peak, 14,000 feet. One on a rock would twitter, vibrating his wings in accompaniment. They were curious and came close to us on the rocks and then fluttered off.

July 15, 1901. At the junction of East and Bubb's Creeks, above the south fork of King's River, the adjacent snow having melted, I saw a flock at this un-



Fig. 54. NEST AND FULL SET OF EGGS OF THE GRAY-CROWNED LEUCOSTICTE AFTER REMOVAL FROM NEST SITE. NOTE THAT THE EGGS ARE UNMARKT

usually low altitude of 9000 feet, and for the first time saw one of them perch on the top of a tamarack tree, the other birds of the flock remaining in the grass. The note resembled 'chea'.

"July 16, 1901. Noted many on the side and top of Mt. Brewer. One flew out from some rocks at the side of the peak as if it had a nest in between the rocks; but I could not locate it.

"July 17, 1901. Observed some perch on the ice floating in the lakes near Harrison's Pass, southeast of Mt. Brewer. One would raise and drop his wings and with tail held up would make a note like that of a little chicken. One at-

tempted to fly up and over Harrison's Pass which is a thousand feet high and very steep. It flew up by degrees in a zig-zag line, stopping on the rocks at each turn.

"July 18, 1901. Found *Leucotictes* on the top of Mt. Whitney, 14,500 feet. They hop along the ridges between the furrows of the snow. Noted them often at this date about the small lakes in the snow in groups of four.

"June 2, 1902. Found on top of Mt. Lyell above Yosemite.

"July 10, 1902. Found at Bullfrog Lake, 11,000 feet, and on top of Mt. Gould, 13,800 feet.

"Of all birds the *Leucosticte* has ever had a fascination for me, but in all my travels I never succeeded in finding a nest."

AN IRRIGATED RANCH IN THE FALL MIGRATION

By FLORENCE MERRIAM BAILEY

WE ONCE spent the first two weeks of September on an irrigated ranch in southeastern New Mexico, and, while the study of the prairie-dog problem had taken us there, we saw many interesting things in the bird line in passing. As the ranch combined alfalfa and stock, outside the branding corrals stood mowing machine and baling press, while the adobe houses of the Mexican laborers stood in the background. Behind the house, water barrel and wood pile—a pile of grubbed-up roots as big as a haystack—spoke of the waterless and treeless character of the valley; but leafy rows of cottonwoods growing along the irrigation ditches, and the vivid green alfalfa fields, gave richness to the immediate landscape.

From the piazza, as we lookt out on the highroad, the principal passers-by were Mexicans. Sometimes there would be a prairie schooner drawn by four burros, on one of which rode a small bare-legged Mexican shaded by the inevitable peaked hat, energetically whipping up his burro train. Sometimes there would be six burros, three abreast; and frequently the load would be of mesquite roots surmounted by a Mexican.

When we first got to the ranch the stock was being branded in the corral, and, as we past on our way back and forth to the dog field, the fire in the middle of the circle, the men with long branding irons making sudden lunges at the terrified cattle as they circled around the ring, the bellows of pain, the headlong plunge of a maddened steer at his tormentors, and the circle of Mexican on-lookers percht safely on top of the high corral fence, all made a sight that we were glad to leave behind for the peaceful, green alfalfa fields.

The irrigation of the alfalfa was a novel and most interesting sight to me. The irrigator was a tall, spare Mexican with a picturesque high hat, purple shirt and red sash, carrying over his shoulder a long shovel. When he had turned the water into a field he would take off his sash, throw it over a fence post, roll his trousers high on his brown legs and then wade about among the ditches like a plover, letting the water out here, banking it in there, hurrying from place to place till he seemed to be everywhere at once. When a sluice had to be opened or shut in a distant field he would catch up his sash, noose it around the nose of a horse he kept near by and, with the shovel over his shoulder, go swinging off bareback, with the grace of a centaur.

The water from the ditches strewed the fields with multitudes of minnows that